

Remarks

In the Office Action mailed on 30 July 2007 the Examiner rejected claims 1 and 2 under 35 U.S.C. §102(e) as anticipated by Beckett (U.S. Patent Publication No. 2005/0015532).

The Examiner also rejected claims 3 and 8 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Elliot (U.S. Patent Publication No. 2005/0066100), rejected claims 4 and 5 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Doelz (U.S. Patent No. 4,156,798), rejected claim 6 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Smith (U.S. Patent No. 5,335,227), rejected claim 7 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Clayton (U.S. Patent Publication No. 2005/0015655), rejected claim 9 under 35 U.S.C. §103(a) as unpatentable over Beckett in view of Bearden (U.S. Patent Publication No. 2003/0097438), rejected claims 10-12 under 35 U.S.C. §103(a) as unpatentable over Bakke (U.S. Patent Publication No. 2005/0071532) in view of Jones (U.S. Patent No. 6,301,642), rejected claims 14 and 16 as unpatentable over Cidon (U.S. Patent No. 5,579,480) in view of Kim (U.S. Patent Publication No. 2003/0217212), and rejected claims 17-20 under 35 U.S.C. §103(a) as unpatentable over Cidon in view of Kim and further in view of Clayton,

Applicants respectfully traverse the Examiner's rejections under §§ 102 and 103 and request reconsideration and withdrawal of all rejections.

35 U.S.C. §§ 102 and 103 Rejections

Claims 1-10

The Examiner rejected independent claim 1 under §102(e) as anticipated by Beckett and rejected claims 2-9 (dependent from claim 1) as either anticipated by Beckett or under §103(a) as unpatentable over Beckett alone or in various combinations with other art. The Examiner repeats his earlier rejection of claim 1. In Applicants earlier response, Applicants maintained that a SAS standard "Discovery" process is well known to discover devices and ports of devices in the domain. However, Applicants strongly urged in that prior response that there is no automated procedure in the SAS specifications or in Beckett for automatically determining and configuring the routing attribute of each port.

Rather, maintained earlier and continue to maintain as discussed in the Background section of the subject application that such a determination and configuration is a manual procedure in accordance with the SAS specifications and that such a process is onerous in a large SAS domain with hundreds of devices and hundreds or thousands of ports. Thus the present invention improves upon the present technology by providing an automated process to determine and configure routing attributes of ports of devices of the domain. Beckett teaches nothing more than use of standard SAS/SATA protocols and thus fails to teach or reasonably suggest any structure or techniques for automatically performing such configuration of the routing attributes of the ports of the devices of the SAS domain. In fact, "routing attributes" are never even mentioned in the teachings of Beckett. Beckett merely proposes an interface circuit capable of communicating in any of several protocols and for selecting among those protocols. Becket proposes no enhancements to the SAS specifications to permit the circuit, when using a SAS protocol, to automatically determine and configure routing attributes of the various ports of the devices of the domain.

In this office action, the Examiner responds to the above arguments by suggesting that "it is well known that SAS port control procedures (shown in e.g. [0039]) are carried out automatically once embedded in a SAS domain." Such a broad statement, even if true, does not address the recited elements of claim 1. To whatever extent the Examiner's use of the undefined phrase "SAS port control procedures" is intended to suggest that automated "configuring the routing attributes of the discovered ports" is well known, Applicants could not disagree more. As noted above, nothing in Beckett teaches or suggests anything more than standard SAS device operation. Beckett is totally silent as regards the methods or means applied to configure the routing attributes of the discovered ports. Thus Becket teaches or suggests nothing more than that which is taught by the SAS specifications. Paragraph 0039 of Beckett cited by the Examiner as teaching such an automated procedure reads in its entirety:

As is discussed below, in this embodiment, depending at least in part upon the selected mode of operation of integrated circuit 40, integrated circuit 40 may be capable of discovering, at least in part, whether one or more devices 52 are capable of communicating via an SAS communication protocol or via an S-ATA communication protocol. Based upon this discovery, at least in part, by integrated circuit 40, integrated circuit 40 may select, at least in part, whether to

communicate with one or more devices 52 using either an SAS or an S-ATA communication protocol, in order to enable integrated circuit 40 to communicate with one or more devices 52.

Applicants respectfully request that the Examiner point out with specificity where in this paragraph of Beckett, or anywhere in Beckett, such an automated step is taught or suggested to configure the routing attributes of each discovered port. In fact, nothing in the above paragraph, or anything in Beckett teaches or reasonably suggests anything more than that the device of Beckett may communicate with standard SAS devices. Configuring the routing attributes of the various ports, though required in any operable SAS domain, is not discussed, taught, or in any way suggested in Beckett let alone method steps and systems as claimed to automate such a procedure.

If the Examiner is suggesting such a feature is so well known, Applicants respectfully request that the Examiner cite where in Beckett, the SAS specifications, or any other art such an automated step is taught or suggested. If the Examiner is asserting that such well known information is within her personal knowledge, Applicants respectfully request that the Examiner provide his personal affidavit attesting to this public knowledge from his personal experience.

Thus, Applicants continue to maintain that independent claim 1 is allowable over Beckett and over all art of record considered individually or in any combination. Dependent claims 2-9 all depend from claim 1 and recite further limitations of the inventive method. For at least the same reasons as discussed above for independent claim 1, dependent claims 2-9 are allowable and also allowable as dependent from an allowable base claim. Applicants respectfully request reconsideration and withdrawal of the rejections of claims 1-9.

Claims 10-12

The Examiner rejected independent claim 10 and dependent claims 11-12 (dependent from claim 10) under §103(a) as unpatentable over Bakke in view of Jones. The Examiner suggests that Bakke teaches a plurality of SAS expanders providing multiple ports each port having a routing attribute and points to paragraph 0013 in support thereof. The Examiner then suggests that Bakke shows a domain controller

operable to configure the routing attributes of the plurality of ports pointing to paragraph 0033 in support thereof. The Examiner then asserts that Bakke at paragraph 0009 teaches that the domain controller is further operable to configure the routing attributes to automatically generate routing tables. Specifically, the Examiner points to Bakke in paragraph 0009 as teaching that since fanout expander have routing tables it is implied that they are generated automatically without intervention.

As above, Applicants could not disagree more strongly. Bakke, like Beckett discussed above, is simply silent as to how routing attributes and routing tables are generated. Rather, Bakke simply points to the use of routing tables and attributes as being used for routing packets through his proposed device. Bakke says nothing as to how such tables and attributes are generated. The Examiner apparently suggests that because of Bakke's silence on this issue, such attributes and tables must impliedly be generated by automated procedures. Such an assumption by implication is completely unfounded. Because Bakke is silent as to how routing tables and attributes are configured and generated clearly does not imply *anything* as to how such information is generated. All SAS expanders that use routing attributes of ports and generate routing tables therefrom clearly must obtain such information from somewhere but there is no basis for the Examiner's conclusion that such information *must* be generated automatically since Bakke says nothing of how the information is generated. It is completely irrelevant in Bakke how such information is generated. The information is simply relied upon in Bakke for the purportedly novel operation of his device. The method of creation of that information is not disclosed, taught, nor suggested by anything in Bakke. By analogy to the Examiner's reasoning, though the undersigned is not aware of how the Examiner was born and is only aware of well known manual procedures for a human birth, the undersigned cannot reasonably imply that some unknown automated method or structure was involved in the Examiner's birth. The Examiner simply states unreasonable and unfounded implications and assumptions regarding Bakke and rejects claim 10 on that basis.

The Examiner combines teachings of Jones with Bakke relying on teachings of Jones regarding traversal of devices on a bus as teaching the recitation of claim 10 regarding the traversing of expander connections to configure the routing attributes of

ports. First and foremost, Jones is completely non-analogous art in that it is completely unrelated to SAS expanders or even more generally is unrelated to networking devices and protocols. Rather, Jones is directed to arbitration methods and structures on a memory bus coupling multiple devices to a shared memory structure. Such arbitration techniques, even if they relate to traversal of devices on the shared bus, bear no relationship to the traversal recited in claim 10 directed to traversing connections between a plurality of SAS expanders in a SAS domain. Secondly, even assuming *arguendo* that Jones is properly combined with Bakke, Jones provides no teachings or suggestion to alleviate the weaknesses of Bakke as discussed above as regards configuration of SAS routing attributes and related routing tables.

Thus, Applicants continue to maintain that independent claim 10 is allowable over Bakke and Jones and over all art of record considered individually or in any combination. Dependent claims 11-12 depend from claim 10 and recite further limitations of the inventive system. For at least the same reasons as discussed above for independent claim 10, dependent claims 11-12 are allowable and also allowable as dependent from an allowable base claim. Applicants respectfully request reconsideration and withdrawal of the rejections of claims 10-12.

Claims 14 and 16-20

The Examiner rejected independent claim 14 under §103(a) as unpatentable over Cidon in view of Kim and rejected claims 16-20 (dependent from claim 14) as unpatentable over Cidon in various combinations with Kim or with Kim and Jones. As regards independent claim 14, the Examiner suggests that the means for discovering the SAS network topology reads on Cidon's VC traversal messages and cites Cidon at column 8, lines 55-60 and column 5, lines 27-32. The Examiner goes on to read the means for configuring SAS routing attributes as well as the means for configuring routing tables as teachings of Cidon at column 7, lines 5-9. The Examiner suggests only that Cidon lacks a teaching of applying his methods and structures to a SAS domain. The Examiner then cites Kim as teaching traversing expanders in a SAS domain and suggests combining Kim with Cidon pointing to Kim at paragraph 0038, lines 1-3 as motivation for such a combination.

Again, Applicants strongly disagree. The teachings of Cidon and Kim (individually or in any combination) simply do not relate to the recitations of the claims. Cidon relates to methods and structures for disseminating control information among the nodes of an ATM network. The information is disseminated by means of forward and reverse virtual circuit (VC) traversal messages. Nothing in Cidon suggests that the VC traversal messages are used to discover the topology of the network (e.g., "means for discovering the topology of the SAS network domain by traversing port connections between devices of the domain" of claim 14). To the contrary, Cidon presumes that the topology is known in the form of the "VC tables" relied upon in the VC traversal processing of FIG. 8 and as described in supporting text at column 9, line 55 through column 10, line 4. Nothing in the processing of the VC traversal process pertains to discovery of the topology of the network. Rather as indicated in the steps of Cidon's FIG. 8, the VC tables are relied upon to determine how the traversal message is to be forwarded forward or backward through the ATM fabric from one CP to another. Thus the network topology as indicated by the VC tables is already known to the CPs of the system and not discovered by any processing taught or suggested by Cidon.

In like manner, the Examiner reads the recited "means for configuring SAS routing attributes" and the "means for configuring routing tables" using the routing attributes" of claim 14 on the teachings of Cidon at column 7, lines 5-9. This citation reads in its entirety as follows: "As will be explained in more detail below, CPs exchange VC traversal messages along the same path as the established VC by examining the entries of the VC table and then routing control messages along control channels that are parallel to the established data channel segments." As above, this teaching of Cidon clearly indicates that the VC table must exist to process the traversal messages. The VC table is the closest analog to the recited routing attributes and routing tables of claim 14. Cidon therefore could not be teaching means to configure such information since its teaching all require the VC table to pre-exist.

The Examiner notes correctly that Cidon does not relate to SAS domains and cites Kim as evidence that the teachings of Cidon as applicable to a SAS domain are well known. Regardless of whether Kim teaches or suggests such (since it makes no mention

of SAS at all), Kim does nothing to alleviate the fundamental deficiencies discussed above with respect to Cidon.

Thus, Applicants continue to maintain that independent claim 14 is allowable over Cidon and Kim and over all art of record considered individually or in any combination. Dependent claims 16-20 depend from claim 14 and recite further limitations of the inventive system. For at least the same reasons as discussed above for independent claim 14, dependent claims 16-20 are allowable and also allowable as dependent from an allowable base claim. Applicants respectfully request reconsideration and withdrawal of the rejections of claims 14 and 16-20.

In view of the above discussion, Applicant respectfully requests reconsideration and withdrawal of the rejections under §§ 102 and 103 of remaining claims 1-12, 14, and 16-20.

Conclusion

Applicants have traversed and thoroughly discussed the Examiner's rejections of all claims under §§ 102 and 103. Applicants have requested reconsideration and withdrawal of all outstanding objections and rejections.

Applicants believe that no other fees are due in this matter. Should any issues remain, the Examiner is encouraged to telephone the undersigned attorney.

Respectfully submitted,

/Daniel N. Fishman/

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